REMARKS

I. INTRODUCTION

Claims 1-42 are under consideration in the above-referenced application.

III. REJECTIONS UNDER 35 U.S.C. §§ 102 AND 103(a) SHOULD BE WITHDRAWN

Claims 1-4, 6-18, 20-32 and 34-42 stand finally rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,767,659 issued to Farley (the "Farley Patent"). Claims 5, 19 and 33 stand finally rejected under 35 U.S.C. § 103(a) as being unpatentable over the Farley Patent, in view of U.S. Patent No. 5,889,385 issued to Podrazhanzky et al. (the "Podrazhanzky Patent"). Claims 14, 28 and 42 stand finally rejected under 35 U.S.C. § 103(a) as being unpatentable over the Farley Patent, in view of U.S. Patent No. 6,188,202 issued to Yagi (the "Yagi Patent"). Applicant respectfully submits that the Farley Patent, taken alone or in combination with either the Podrazhanzky Patent or the Yagi Patent, do not teach, suggest or disclose the subject matter recited in independent claims 1, 15 and 29, and the claims which depend therefrom. Thus, it is respectfully requested that the 35 U.S.C. §§ 102 and 103(a) rejections of these claims be withdrawn for at least the reasons set forth herein below.

In order for a claim to be rejected as anticipated under 35 U.S.C. § 102(b), each and every element as set forth in the claim must be found, either expressly or inherently described, in a single prior art reference. Manual of Patent Examining Procedure §2131; *also see Lindeman Machinenfabrik v. Am Hoist and Derrick*, 730 F.2d 1452, 1458 (Fed. Cir. 1984).

In order for a claim to be rejected for obviousness under 35 U.S.C. § 103, not only must the prior art teach or suggest each element of the claim, the prior art must also suggest

combining the elements in the manner contemplated by the claim. *See Northern Telecom, Inc. v. Datapoint Corp.*, 908 F.2d 931, 934 (Fed. Cir.), *cert. denied* 111 S.Ct. 296 (1990); *see In re Bond*, 910 F.2d 831, 834 (Fed. Cir. 1990). "It is improper to use the inventor's disclosure as a road map for selecting and combining prior art disclosures." *See Grain Processing Corp. v. American Maize-Products Corp.*, 840 F.2d 902, 907 (Fed. Cir. 1988). "[T]he reference must be viewed without the benefit of hindsight afforded to the disclosure." *In re Paulsen*, 30 F.3d 1475, 1482 (Fed.Cir. 1994). The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on Applicant' s disclosure. *See In re Vaeck*, 947 F.2d 488 (Fed. Cir. 1991).

As previously described, the Farley Patent relates to a battery pack including a component in which predetermined battery parameters definitive of a battery pack characteristic may be stored, together with a battery parameter sensor. A micro-controller responsive to the sensing of a battery parameter is provided for controlling the battery pack characteristic based upon the sensed parameter. (See Farley Patent, Abstract). The sensed parameter may be an indication of a substantially full charge as provided by a current source operably connected to the battery pack, and subject to being disconnected when a predetermined cell temperature is reached which is indicative of full charge. (See *id.*, Abstract).

In particular, the arrangement of the Farley Patent uses a processor that monitors cell temperature with time. For example, temperature measurements are logged at intervals such as each 5-10 seconds, and when a profile which matches a stored profile indicative of substantially full charge is identified, the transistor may be switched to shunt the charging current. The battery pack temperature may then rise due to the heat dissipated in a resistor R enabling the simple full charge

detection by temperature of the battery charger to operate to end or shut-off the fast charge current in appropriate charger types. The processor of the Farley Patent may be arranged such that this overcharge protection occurs only when the temperature rise is due to the charging current (i.e. flow into the cells). (See *id.*, col. 5, lns. 35-51; and col. 19, lns. 50-60).

As shown in Fig. 8b of the Farley Patent, the cell temperature is read and stored so that a profile of cell temperature with time may be built up. If the cell temperature is within the range (step 89) for which fast charging is appropriate, then the cell temperature profile established to date is examined to see if the profile is equivalent to that of a full charged cell array (step 800). If not, after a pause of 1 minute and assuming the timer which has set the fast charging time limit before current shunting is to be applied has not expired (801), control loops back to a point label (a) where a portion of the aforesaid control regime is repeated. An outcome of this iteration is that repeated samples of cell temperature with time are stored and a profile built up which will eventually equate with the full charge profile (at step 800). An adjustment to the assumed charge state (i.e., 90% charged which is also known as profile) may be made to account for temperature. Whether full charge was reached or not, the current charge level, based on the charging which has occurred applied to the previously stored battery charge status, is displayed. At this point when the battery is fully charged (at step 805), the current shunting transistor is switched on so that only a trickle current remains at the cell terminals. (See *id.*, col. 10, lns. 1-27; and Fig. 8b).

Applicant's invention, as recited in independent claim 1, relates to battery charger configured to provide a temperature-regulated charging of a battery, which comprises the steps of, *inter alia*:

a processing arrangement operable to:

(a) obtain a temperature data associated with the battery; and

(b) apply a particular amount of a charge to the battery based on the temperature data of the battery, **wherein ... the battery [is maintained] at a predetermined threshold temperature during a time period in which the charge is applied to the battery.**

Independent claims 15 and 29 relate to process and storage medium, respectively, which recite similar subject matter.

It is again respectfully asserted that in clear contrast to Applicant's claimed invention, the Farley Patent fails to teach, suggest or disclose the battery charger, method and storage medium in which **the battery is maintained at a predetermined threshold temperature during a time period in which the charge is applied to the battery**, as recited in independent claims 1, 5 and 29 of the above referenced application.

In the Final Office Action, the Examiner again points to col. 19, lns. 35-60 and then to Fig. 8B and col. 10, lns. 1-40 of the Farley Patent as allegedly disclosing such temperature maintenance. Indeed, the Examiner believes that the "maintenance of the temperature of the battery [in the Farley Patent is achieved] because charge shunting is provided when the battery has exceeded a threshold temperature, and that it is well known that the temperature of the battery will stop increasing (and start decreasing) when the charging current is lowered for trickle charging (or stopped completely)." (Final Office Action, p. 7, lns. 4-9).

Column 10, lines 1-27 of the Farley Patent only describe the use of a temperature sensor to detect a cell temperature. In addition, column 19, lines 35-60 describe the use of a current shunting circuit and a microcontroller which regulates a battery cell temperature threshold. Further,

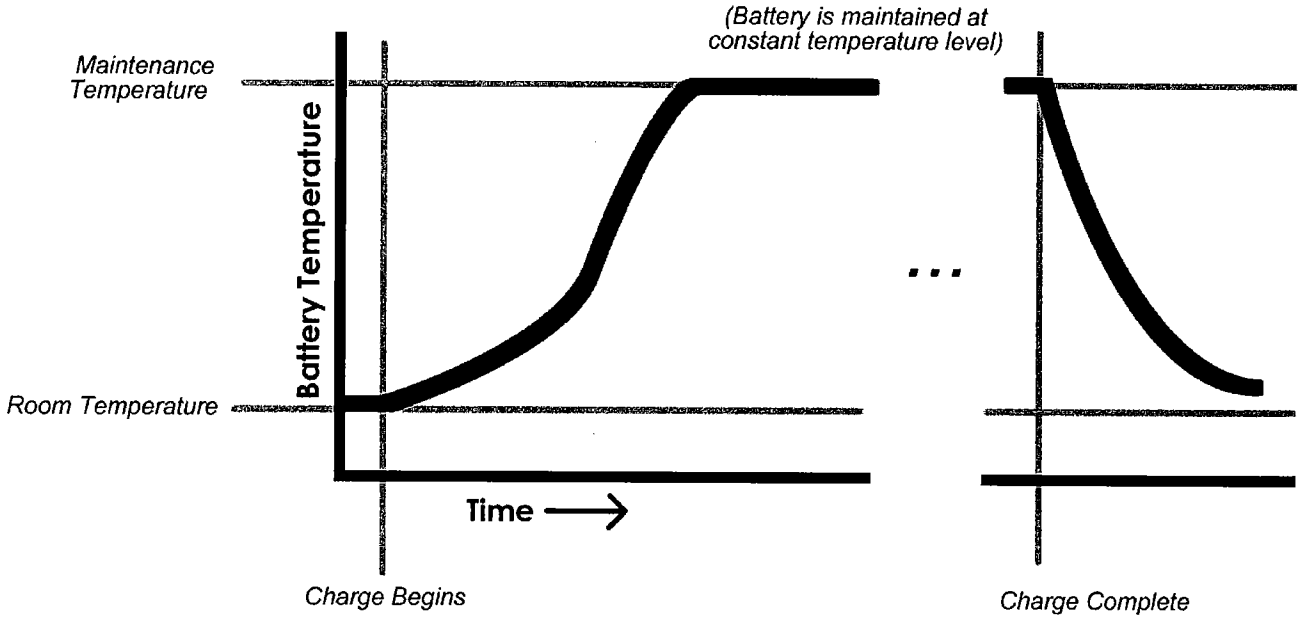
in column 19, lines 61-66, the Farley Patent states that the controller is responsive to the detection of the temperature rise to a magnitude reaching the batter cell temperature threshold (indicative of a full charge) so as to render the current shunting circuit to provide shunt current charging.

However, there is absolutely no teaching, suggestion or disclosure in the Farley Patent of any **maintenance of the temperature of the battery**, much less that such maintenance occurs during the time period in which the charge is applied to the battery, as recited in these independent claims. Applicant acknowledges that if the current to the battery is completely stopped, switched to a trickle charge or to any lower intensity charge according to the Farley Patent, it is possible that the temperature of the battery would decrease. However, such complete prevention or reduction of current flow would **in no way *maintain*** the temperature of the battery.

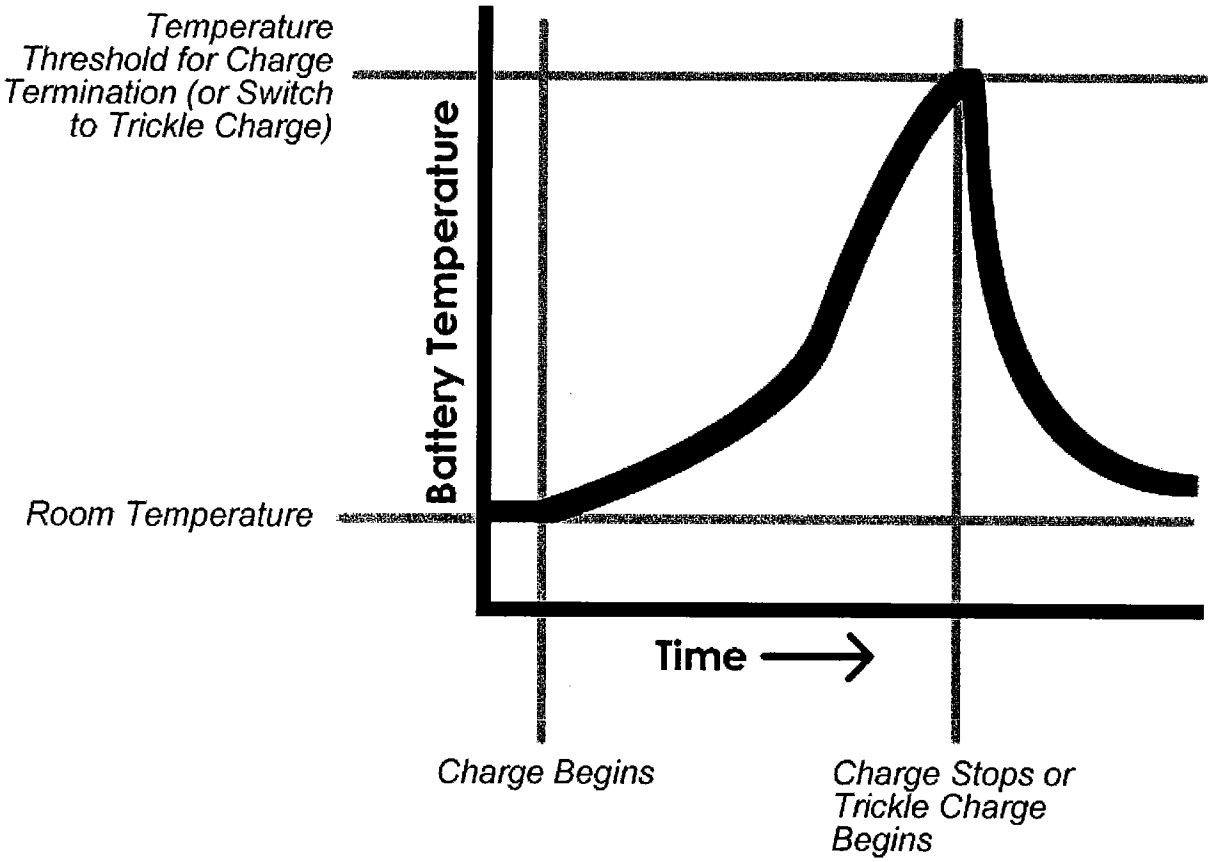
Indeed, according to the Farley Patent, when the battery is fully charged (at step 805), the current shunting transistor is switched on so that only a trickle current remains at the cell terminals. (See Farley, col. 10, lns. 25-27; and Fig. 8b). Thus, while the Farley Patent describes that the shunting circuit is employed at that time to allow a trickle current to be provided to the battery, there is absolutely no disclosure therein that such trickle current would maintain the temperature of the battery. However, it is known that the use of the trickle charge is not a reliable way to maintain the temperature of the battery. In fact, such trickle charge can be small enough so as to reduce the temperature of the battery, while still maintaining the charge of the battery, and thus no maintenance of the temperature is being performed. For example, the definition of the term "maintain" is to "keep (something) at the same level or rate," as provided in Oxford-American Dictionary. Thus, if the temperature drops as would be the case using the disclosure of the Farley Patent, clearly no "maintenance of the temperature" is being performed, as recited in the independent claims of the

above-referenced application. Provided below are the graphs of the exemplary temperature profile which can be accomplished using the independent claims of the above-identified application, and a likely temperature profile obtained using the disclosure of the Farley Patent.

Harrison - Example Temperature Profile



Farley Patent - Example Temperature Profile



Based on a review of the above exemplary temperature profile graphs, it is clear that the Farley Patent does not disclose any maintenance of temperature, and instead provides for a reduction of the temperature

Accordingly, for at least the above described reasons, Applicant respectfully asserts that the Farley Patent does not disclose **the maintenance** of the temperature of the battery, or that such maintenance occurs during the time period in which the charge is applied to the battery, as recited in independent claims 1, 5 and 29. The Podrazhanzky Patent and the Yagi Patent do not cure at least these deficiencies of the Farley Patent, and the Examiner does not contend that they do.

Therefore, Applicant respectfully submits that the Farley Patent, taken alone or in combination with the Podrazhanzky Patent or the Yagi Patent, fail to teach, suggest or disclose the subject matter recited in independent claims 1, 15 and 29. The claims which depend from these independent claims are also believed to be allowable over the Farley, Podrazhanzky and Yagi Patents for at least the same reasons as set forth herein above with respect to independent claims 1, 15 and 29.

Thus, for at least these reasons, the 35 U.S.C. §§ 102(b) rejection of independent claims 1, 15 and 29, and the §§ 102(b) and 103(a) rejections of the claims which depend there from should be withdrawn. In addition, it is believed that various claims which depend from independent claims 1, 15 and 29 are also allowable over the alleged combination of the Farley, Podrazhanzky and Yagi Patents for at least the same reasons, as well as contain separately patentable subject matter as set forth herein above.

III. CONCLUSION

In light of the foregoing, Applicant respectfully asserts that pending claims 1-42 are in condition for allowance. Prompt consideration, reconsideration and allowance of the present application are therefore earnestly solicited.

Respectfully submitted,

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